

CLAIMS

1. A pulse generating circuit for successively
outputting a pulse of positive polarity and a pulse of
negative polarity, comprising:

a transformer (14) and a single switch (16) which are
connected in series across a DC power supply (12);

wherein an output is produced across a secondary
winding (18) of said transformer (14).

2. A pulse generating circuit according to claim 1,
wherein either one of the pulse of positive polarity and the
pulse of negative polarity is output in a period during
which said switch (16) is turned on, and a pulse of opposite
polarity is output due to electromotive forces induced when
said switch (16) is turned off.

3. A pulse generating circuit according to claim 2,
wherein if said DC power supply (12) has a power supply
voltage V , said transformer (14) has a winding ratio n and a
primary inductance value L_1 , and a current flowing through a
primary winding (22) of said transformer (14) is cut off at
a rate (di/dt) , then the pulse output in the period during
which said switch (16) is turned on has a pulse voltage
determined by nV , and the pulse of opposite polarity has a
pulse voltage determined by $nL_1(di/dt)$.

4. A pulse generating circuit according to any one of claims 1 through 3, further comprising:

a capacitor (26) connected in parallel to said switch (16).

5

5. A pulse generating circuit according to any one of claims 1 through 4, wherein a capacitive load (30) is connected across said secondary winding (18), further comprising:

10 a diode (32) connected in parallel to said switch (16) in a reverse orientation.

6. A pulse generating circuit according to any one of claims 1 through 5, wherein said switch (16) comprises a
15 semiconductor switch.